

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

### Improvements in or relating to Nuts

I, JOHN POLLARD DENNIS, of "The Heys", Caldy, Wirral, Cheshire; a British subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention concerns nuts for use in attaching a screw threaded item, e.g. a bolt, to a slotted member, e.g. a member having a partial box section or a slotted plate.

An object of the invention is to provide a nut which is easily positioned in a slot and is capable of being self retained at a selected position especially when the slot extends vertically.

The present invention consists in a nut for use in attaching a screw threaded article, such as a bolt, to a slotted member, said nut having a nut body of elongated rectangular shape which either includes or has attached thereto an element which overlies an elongated rectangular face of the body on both sides of the bore therethrough to form gaps extending transversely to the longitudinal body axis, in which gaps the edges of a slot in a said slotted member may engage to retain the said nut in a chosen position prior to or during screwing of the article thereto.

The term "rectangular" is intended to mean rectangular in plan, which is to say rectangular as viewed along the axis of the nut body bore.

Advantageously the said element is resilient. The said element may be of sheet material or, as in one preferred embodiment of the invention, the element may be made from a hardened steel wire spring, which embraces the nut body. Conveniently this wire spring is secured in a slit or hole in the nut body so that the element and body are not readily separated in use or prior to use e.g. by unskilled operatives.

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The nut body is advantageously but not essentially provided with longitudinally extending teeth on its said elongated face so that when tightened the nut body forms a positive key against its possible displacement relative to the slotted element.

A slotted member and nut body such as the angle section and nut of the constructional building or engineering elements described in the specifications of patents Nos. 782,428 and 853,581 may conveniently be used.

One form of slotted member which may conveniently be used with a nut in accordance with the invention consists in a box section having corrugated sides and flanges. Such a section may advantageously be made of relatively thin gauge sheet material and can be arranged to have a centre of strength at approximately the intersection of its diagonals.

The invention will be described further by way of example, with reference to the drawings accompanying the provisional specification and in which:—

Fig. 1 is a section, partly in elevation, showing one embodiment of a nut, in accordance with the invention, in its relationship to a slotted member and screw-threaded item, the bracket or the like to be fixed to the slotted member being omitted for the sake of clarity;

Fig. 2 is a section, partly in elevation, showing another embodiment of a nut in accordance with the invention, in its relationship to a slotted member, other parts being omitted for the sake of clarity;

Fig. 3 is a fragmentary plan corresponding to Fig. 2; and

Fig. 4 is a fragmentary perspective view of a slotted member with which a nut according to the invention may be used.

In the embodiment of Fig. 1 the outermost end of the elongated nut body 11 is provided with two parallel longitudinally extending teeth 11a, one only of which is to

be seen in Fig. 1 but both of which are visible in Fig. 3, the embodiments of the two Figures being similar in this respect. When the nut is tightened, these teeth form a positive key with the material of the slotted member. A chamfer or bevel 11*b* is provided at each side of the nut body to permit the nut body to rotate into a locking position relative to the inner vertical faces of a partial box section slotted member such as that shown in the Figures and referenced generally 12. The nut of Fig. 1 includes an element 13 of sheet steel, preferably hardened, to bite into adjacent surfaces when the nut is tightened. The said element has depending lugs 13*a* passing around the front and rear faces of the nut body 11 and being bent upwards to lie flush with the lower surface (not visible in the Figures) of the nut body. The said lugs 13*a* terminate on the said lower surface just short of making contact with the bolt 14 which penetrates the nut body from its upper to its lower surface via the nut bore. The engaging element 13 has two lateral flaps 13*b* which extend in the longitudinal direction of the elongated nut body and are adapted to bear on the outer slot-adjacent surfaces 12*a* of a member 12 when the nut as a whole is turned so that its length lies across the slot width.

In the embodiment of Figs. 2 and 3 a detachable and preferably hardened, wire element 23 is utilised in place of the sheet element 13. The said wire element 23 is in the form of a closed loop which is bent as shown in the said Figure, the position of the wire beneath the nut in Fig. 3 being shown in dotted lines.

Fig. 4 shows a form of slotted member which has a centrally disposed centre of strength and is especially susceptible to manufacture in light gauge sheet metal because of the various flanges incorporated therein which render it particularly bend-resistant.

#### WHAT I CLAIM IS:—

1. A nut for use in attaching a screw threaded article such as a bolt, to a slotted member, said nut having a nut body of elongated rectangular shape which either includes or has attached thereto an element

which overlies an elongated rectangular face of the body on both sides of the bore there-through, to form gaps extending transversely to the longitudinal body axis, in which gaps the edges of a slot in a said slotted member may engage to retain the said nut in a chosen position prior to or during screwing of the article thereto.

2. A nut as claimed in claim 1 wherein the said element is resilient.

3. A nut as claimed in claim 1 or 2, in which said element is made integral with the nut body.

4. A nut as claimed in claim 1 or 2, in which the said element is of sheet material.

5. A nut as claimed in claim 1 or 2 in which the outer surface engaging element is in the form of a bent wire.

6. A nut as claimed in claim 1, 2, 4 or 5 in which the said element is of material which is harder than the material of the nut body.

7. A nut as claimed in claim 6 when appendant to claim 5 in which the element is made from a hardened steel spring wire.

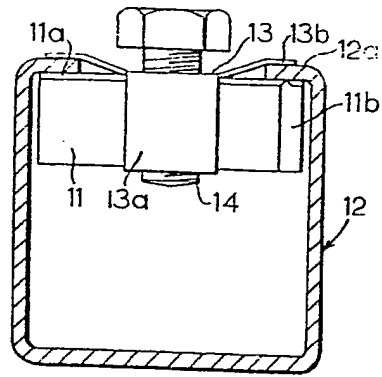
8. A nut as claimed in claim 7, in which the wire spring is secured in a slit or hole in the nut body so that the element and body are not readily separated in use or prior to use.

9. A nut as claimed in any preceding claim, in which the said elongated face of the nut body is provided with longitudinally extending teeth.

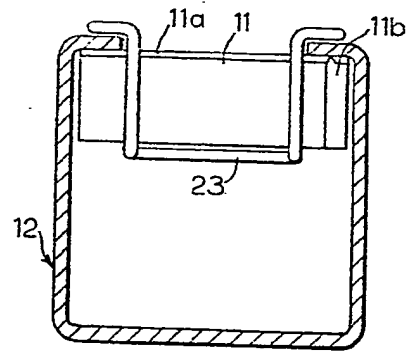
10. A nut for use in attaching a screw threaded item to a slotted member, substantially as described herein with reference to and as illustrated in Fig. 1 or Figs. 2 and 3 of the drawings accompanying the provisional specification.

11. A combination of a nut as claimed herein and a slotted member substantially as described herein with reference to and as illustrated in Figs. 1, 2, 3 and 4 of the drawings accompanying the provisional specification.

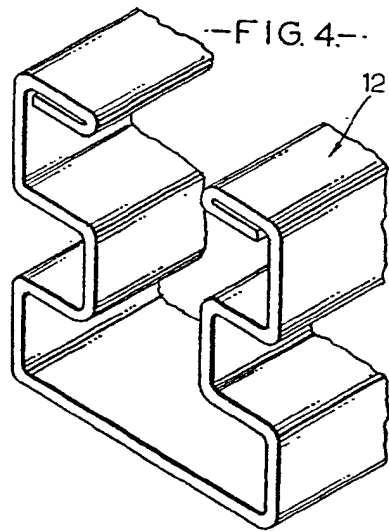
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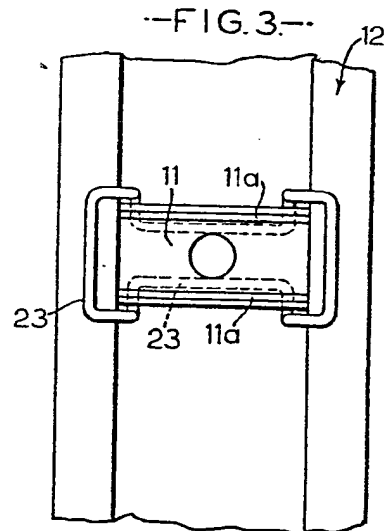
--FIG. 1--



--FIG. 2--



--FIG. 4--



--FIG. 3--